in terms of health outcome as well as in terms of cost for high-risk patients from the perspective of the individual patient as well as of the health care payer. However, this effect is sensitive to time of treatment start, diagnostic certainty as well as rates for hospitalisation, complication and mortality.

PIN17

COST-EFFECTIVENESS OF 23-VALENT ANTIPNEUMOCOCCICAL VACCINATION IN CATALONIA (SPAIN)

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OBJECTIVE: Pneumococcical vaccine is an affective preventive intervention to prevent pneucoccical pneumonia. In this study, cost-effectiveness of pneumococcical vaccination (23 serotipes) strategies in individuals aged 5 or more years was assessed. **METHODS:** Cost-effectiveness was measured in terms of cost per life year gained (LYG), comparing net programme costs and effectiveness. The net programme cost was calculated from vaccinating costs, assuming 70% compliance, less reduced health costs from pneumococcical pneumonia achieved with the programme. Vaccination costs were calculated taking into account a cost of €11,51 per vaccine. Costs and benefits were estimated for 1996 using a 5% discount rate. **RESULTS:** A cost-effectiveness ratio of €9.023,27 per LYG was obtained for the universal vaccination of the population. The cost-effectiveness ratio was €113.177,12 per LYG in individual aged 5–24 years, €19.482,51 per LYG in those aged 25–44 years, €7.122,80 per LYG in those aged 45–64 y < 0 in those aged >64 years. In the age group of >64 years, disease costs reduced were higher than vaccination costs, with a savings/costs ratio of 1,58. Results of cost-effectiveness analysis were sensitive to the vaccine price, vaccine efficacy and the percentage of pneumonias caused by S. pneumoniae, being less sensitive to health costs from pneumococcical pneumonia, hospitalization rate in patients with a community acquired pneumonia and vaccination compliance. **CONCLUSION:** Results obtained in this study shows that pneumococcical vaccination should be a priority preventive intervention in individuals aged >64 and 45–64 years.

PIN18

RELEVANCE OF COMPLICATIONS AS COST DRIVERS OF VARICELLA

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OBJECTIVES: For many diseases, a small number of complicated cases accounts for the main part of the costs. Our aim was to investigate the relevance of complications for the overall costs of varicella in Germany in order to assess whether vaccination strategies targeting at risk groups, e.g. adolescents, have the potential to substantially reduce the economic burden of varicella. **METHOD:** A decision-analytic model, the Economic Varicella VaccInation Tool for Analysis (EVITA), was used to analyze epidemiological and economic effects of varicella over a period of 30 years as varicella incidence fluctuates over time and, thus, a typical cost of illness study performed in one year might provide biased estimates of overall costs. Input data on the epidemiology of varicella and its complications as well as the respective resource use were derived from two large surveys. **RESULTS:** Complications occur in 5.7% of the annual average of 739,000 cases. Overall annual costs are €187.5 million from the societal and €78 million from the payers' perspectives. From the payers' (societal) perspective 32.0% (24.7%) of the overall costs can be attributed to complications. Complications account for 53.8% (53.3%) of the direct medical costs and 15.5% (18.3%) of the indirect costs. When complications occur, inpatient care (67.7%) from the payers' and work loss (60.9%) from the societal perspectives are the main cost drivers of complications. Pneumonia accounts for the majority of the costs of complications. For uncomplicated courses of varicella, the indirect costs of work loss are the major cost factor. **CONCLUSIONS:** Complications account for a disproportionate part of overall disease costs. However, uncomplicated courses account for the vast majority of costs. Vaccination strategies targeting only on risk groups with high risks of complications might therefore fail to substantially reduce the considerable economic burden of varicella.

PIN19

COST BENEFIT ANALYSIS ON VACCINATION FOR MEASLES IN JAPAN

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OBJECTIVE: In Japan, measles vaccine coverage is lower than 80% nationwide. As a result, the number of measles case is estimated about 100,000–200,000 a year. In this study, we performed cost-benefit analysis between the cost of vaccination and the cost of treatment of measles. Although cost effectiveness analysis including cost-benefit analysis of vaccination is extensively performed (e.g. influenza), it is not carried out concerning measles at all. This research is unique in this point of view. **METHODS:** We conducted chart investigation of 291 measles patients (171 outpatient cases and 120 hospitalization cases) in one hospital from July 1997 to September 2001. Among them, medical expenses were calculated about 121 samples of outpatients and 112 inpatients which are considered to be appropriate for the contents of medical treatment. At the same time, we estimated opportunity

cost from the employment situation of the parents of the child patients from the chart and the interview. Loss profits were taken into consideration about death cases or the critical sequelae. **RESULTS:** Medical expenditure in outpatient cases was about 120,000 yen on average, while it was 300,000 yen for hospitalization cases. The opportunity cost was far exceeded medical expenses. Benefit Cost ratio (BCR) was 2.5, when the base case was set up and was presumed. In the result of sensitive analysis of BCR, it ranged from 2.3 at a minimum to about 5 at the maximum. Discussion in the preceding research on the BCR analysis of vaccination, it is well-known that BCR is 1.4 for hepatitis B vaccine for infants, 1.93 for influenza vaccine for pre-school children, and 1.81 for influenza vaccine for healthy adults. When compared with this research, the result of this research shows the validity of a measles vaccine strongly. **CONCLUSION:** We conclude that measles vaccination is excellent method of prevention from the viewpoint of cost-benefit analysis.

PIN20

THE COST-EFFECTIVENESS OF ANTIRETROVIRAL REGIMENS CONTAINING PROTEASE INHIBITORS (PIS) OR NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NNRTI) IN THE TREATMENT OF HIV-INFACTED INDIVIDUALS IN POLAND

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OBJECTIVES: The aim of the study was to compare the highly active antiretroviral therapy either with ritonavir (RTV)/saquinavir (SQV), lopinavir/ritonavir (LPV/RTV), indinavir (IDV), nelfinavir (NFV) or efavirenz (EFV) in combination with two nucleoside reverse transcriptase inhibitors therapy. **METHODS:** The cost-effectiveness analysis was conducted. Clinical data were derived from published clinical trials and large observational cohorts. The analysis was based on the drug costs solely, obtained from National AIDS Centre in Poland. Three scenarios were investigated in the research. The first one extended over a time of 48 weeks of the treatment with a studied NNRTI or PI. A measure of effectiveness was defined as a virological suppression of serum HIV-RNA <400 copies/mL at the end of the treatment. In the second scenario the initial therapy for HIV infection could be switched twice in patients who failed their PI- or NNRTI-based treatment regimen. The time horizon of the analysis was set to 144 weeks, i.e. 3 cycles—48 weeks each. A measure of effectiveness was defined as virological suppression at any point of time during the whole time horizon. In the third scenario the time horizon lasted for 10 cycles (480 weeks) of HIV-infection treatment, with two changes of treatment regimens in case of failure. In this scenario the measure of effectiveness was defined as a number of cycles with a serum HIV-RNA <400 copies/ml. **RESULTS:** LPV/RTV proved to be the most cost-effective combination in the first two scenarios having the cost-effectiveness ratio (C/E ratio) of 22987 PLN (Polish zlotys) and 23594 PLN, respectively. In the third scenario EFV was the most cost-effective therapy with a C/E ratio of 15254 PLN. The sensitivity analysis turned out in all scenarios the combination LPV/RTV had the smallest standard error of C/E ratio proving to be more attractive. The sensitivity analysis proved the robustness of the obtained results against the assumptions taken. **CONCLUSIONS:** Depending on the scenario presumed either the therapy containing LPV/RTV or EFV is the most cost-effective alternative of the treatment of HIV-infection in Poland.

PIN21

HOSPITALISATION COSTS FOR YOUNG CHILDREN WITH RESPIRATORY SYNCYTIAL VIRUS INFECTION

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OBJECTIVES: To estimate the hospitalisation costs, both on average and for selected subgroups, for severe infection with the respiratory syncytial virus (RSV) in young children. **METHODS:** We collected data of children hospitalised for severe RSV infection during four seasons 1996/97, 1997/98, 1998/99, and 1999/2000 in 29 hospitals in the Southwest of The Netherlands (n = 3,487). Five patient characteristics (sex, gestational age, presence of bronchopulmonary disease (BPD), birth weight and age) were collected for all patients together with the number of hospital days. In addition, detailed information of 20 resources related to daily hospital care was collected for children hospitalised in the last season (1999/2000). Volumes of care were obtained from hospital registries and questionnaires among nurses and physicians. Prices were based on hospital accounts and national salary guidelines. For the last season (n = 946), the individual total hospitalisation costs were directly calculated. We estimated the costs for the children hospitalised in the first three seasons (1996/97, 1997/98, and 1998/99) based on the correlation of costs with the number of hospital days and the 5 patient characteristics using a linear regression model. **RESULTS:** The number of hospital days accounted for >80% of the variety in total hospitalisation costs in the season 1999/2000. The average total costs of the season 1999/2000 were €3,135 per child. The costs for children with low gestational age were considerably higher (€5,325 for a child with gestational age ⇐28 weeks). Also, hospitalisation of a child with BPD was more expensive (€5,870). **CONCLUSIONS:** The hospital related costs of severe RSV infections in young children were primarily determined by the number of hospital days. Therefore, we could estimate the hospitalisation costs for four RSV seasons, although detailed informa-